

On page 8, please **replace** the paragraph spanning lines 7-22 with the following paragraph:

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BS Referring to FIG. 2B, gas inlet port 36 is connected by passage 58 through valve body 42 to control valve bore 50. Outlet port 60 is connected by passage 62 through valve body 42 to the control valve bore 50. Housing 57 retains the diaphragm 54 in proximity to the valve body 42. Diaphragm 54 has a cylindrical center piston 61 (FIG. 2D) which is positioned parallel to, and an adjustable close spacing from, the surface of valve seat 53. Diaphragm 54 also has a thick annular edge 63 which rests on a circular lip 56 formed in the valve body 42. Diaphragm 54 is manufactured of stainless steel or a similarly flexible metal. Movable "spider" portion 59 of diaphragm 54 comprises a thin (e.g. 40-50 mil), elastic, annular sheet or membrane connecting the thick annular edge 63 and the cylindrical center piston 61. Annular O-ring seal 55 couples to the annular edge of diaphragm 54 and thereby contains the vapor/carrier mixture within valve bore 50.

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#### IN THE CLAIMS

In regard to the second requirement in the Notice of include a marked-up version of the amended claim(s), Applicants respectfully point out that the Preliminary Amendment filed on July 31, 2001 canceled originally filed claims 1-9 and added new claims 10-28. Accordingly, Applicants believe that no "marked-up" version is required.

In any event, Applicants have reproduced and "clean version" of **new** claims 10-28 below, which starts on the next full page.

10. A vaporizer for vaporizing a liquid and mixing the vaporized liquid with a carrier gas, said vaporizer comprising:

a valve body having a first aperture, a second aperture and a third aperture;

a valve seat through which fluid flows;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to and opposite said valve seat, said valve element being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position; and

an outlet port connected to said third aperture through a third fluid channel.

11. The vaporizer of claim 10 wherein in its fully closed position, the valve element abuts said valve face and during operation prevents flow of liquid through said second aperture.

12. The vaporizer of claim 10 wherein said valve seat has a seat face that is opposed to said valve element and in which said second aperture is formed.

13. The vaporizer of claim 12 wherein said seat face is planar.

14. The vaporizer of claim 13 wherein said seat face is circular and has a diameter of about 0.5 cm.

15. The vaporizer of claim 12 wherein said valve element has a valve face that is opposed to said valve seat.

16. The vaporizer of claim 15 wherein said valve face is planar.

17. The vaporizer of claim 10 wherein said valve seat has a seat face that is planar and opposed to said valve element and in which said second aperture is formed, said valve element has a valve face that is planar and opposed to said valve seat, and said seat face and valve face are parallel to each other.

18. A chemical vapor deposition system using a liquid reactant and a carrier gas, comprising:

a chemical vapor deposition chamber having a gas inlet port, and

a liquid reactant vaporizer having an outlet port connected to said chamber inlet port, said vaporizer comprising:

a valve body having a first aperture, a second aperture, and a third aperture;

a valve seat;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid reactant, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to said valve seat and forming a valve region, said valve seat being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position so as to variably control the flow rate of the fluid; and

an outlet port connected to said third aperture through a third fluid channel.

19. A vaporizer for vaporizing a liquid and mixing the vaporized liquid with a carrier gas, said vaporizer comprising:

a valve body having a first aperture, a second aperture and a third aperture;  
a valve seat through which fluid flows;  
a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;  
a liquid inlet port for receiving the liquid, said liquid inlet port connected to said second aperture through a second fluid channel;  
a valve mechanism including a valve element disposed adjacent to and opposite said valve seat, said valve element being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position; and  
an outlet port connected to said third aperture through a third fluid channel,  
the valve body defining a first volume in adjustable, fluid communication with a second volume through the valve seat wherein during normal operation the pressure in the first volume is different than the pressure in the second volume.

20. The vaporizer of claim 19 wherein in its fully closed position, the valve element abuts said valve face and during operation prevents flow of liquid through said second aperture.

21. The vaporizer of claim 19 wherein said valve seat has a seat face that is opposed to said valve element and in which said second aperture is formed.

22. The vaporizer of claim 19 wherein said seat face is planar.

23. The vaporizer of claim 22 wherein said seat face is circular and has a diameter of about 0.5 cm.

24. The vaporizer of claim 21 wherein said valve element has a valve face that is opposed to said valve seat.

25. The vaporizer of claim 24 wherein said valve face is planar.
26. The vaporizer of claim 19 wherein said valve seat has a seat face that is planar and opposed to said valve element and in which said second aperture is formed, said valve element has a valve face that is planar and opposed to said valve seat, and said seat face and valve face are parallel to each other.
- 27. A chemical vapor deposition system using a liquid reactant and a carrier gas, comprising:
- a chemical vapor deposition chamber having a gas inlet port, and
  - a liquid reactant vaporizer having an outlet port connected to said chamber inlet port, said vaporizer comprising:
    - a valve body having a first aperture, a second aperture, and a third aperture;
    - a valve seat;
    - a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;
    - a liquid inlet port for receiving the liquid reactant, said liquid inlet port connected to said second aperture through a second fluid channel;
    - a valve mechanism including a valve element disposed adjacent to said valve seat and forming a valve region, said valve seat being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position so as to variably control the flow rate of the fluid; and
    - the outlet port connected to said third aperture through a third fluid channel,
    - the valve body defining a first volume in adjustable, fluid communication with a second volume through the valve seat wherein during normal operation the pressure in the first volume is different than the pressure in the second volume.
28. A method for vaporizing a liquid and mixing the vaporized liquid with a carrier gas, the method comprising:

a) providing a vaporizer having:

a valve body having a first aperture, a second aperture and a third aperture;

a valve seat through which fluid flows;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to and opposite said valve seat, said valve element being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position; and

an outlet port connected to said third aperture through a third fluid channel,

the valve body defining a first volume in adjustable, fluid communication with a second volume through the valve seat wherein during normal operation the pressure in the first volume is different than the pressure in the second volume;

b) providing sources of liquid and carrier gas;

c) vaporizing liquid in the valve seat by operating the valve and sources such that there is a change in pressure from the liquid inlet to the vapor outlet.

--10. A vaporizer for vaporizing a liquid and mixing the vaporized liquid with a carrier gas, said vaporizer comprising:

a valve body having a first aperture, a second aperture and a third aperture;

a valve seat through which fluid flows;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to and opposite said valve seat, said valve element being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position; and

an outlet port connected to said third aperture through a third fluid channel.--

--11. The vaporizer of claim 10 wherein in its fully closed position, the valve element abuts said valve face and during operation prevents flow of liquid through said second aperture.--

--12. The vaporizer of claim 10 wherein said valve seat has a seat face that is opposed to said valve element and in which said second aperture is formed.--

--13. The vaporizer of claim 12 wherein said seat face is planar.--

--14. The vaporizer of claim 13 wherein said seat face is circular and has a diameter of about 0.5 cm.--

--15. The vaporizer of claim 12 wherein said valve element has a valve face that is opposed to said valve seat.--

--16. The vaporizer of claim 15 wherein said valve face is planar.--

--17. The vaporizer of claim 10 wherein said valve seat has a seat face that is planar and opposed to said valve element and in which said second aperture is formed, said valve element has a valve face that is planar and opposed to said valve seat, and said seat face and valve face are parallel to each other.--

--18. A chemical vapor deposition system using a liquid reactant and a carrier gas, comprising:

a chemical vapor deposition chamber having a gas inlet port, and  
a liquid reactant vaporizer having an outlet port connected to said chamber inlet port, said vaporizer comprising:

a valve body having a first aperture, a second aperture, and a third aperture;

a valve seat;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid reactant, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to said valve seat and forming a valve region, said valve seat being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position so as to variably control the flow rate of the fluid; and

an outlet port connected to said third aperture through a third fluid channel.--

--19. A vaporizer for vaporizing a liquid and mixing the vaporized liquid with a carrier gas, said vaporizer comprising:

a valve body having a first aperture, a second aperture and a third aperture;

a valve seat through which fluid flows;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;



a liquid inlet port for receiving the liquid, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to and opposite said valve seat, said valve element being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position; and

an outlet port connected to said third aperture through a third fluid channel,

the valve body defining a first volume in adjustable, fluid communication with a second volume through the valve seat wherein during normal operation the pressure in the first volume is different than the pressure in the second volume.--

--20. The vaporizer of claim 19 wherein in its fully closed position, the valve element abuts said valve face and during operation prevents flow of liquid through said second aperture.--

--21. The vaporizer of claim 19 wherein said valve seat has a seat face that is opposed to said valve element and in which said second aperture is formed.--

--22. The vaporizer of claim 19 wherein said seat face is planar.--

--23. The vaporizer of claim 22 wherein said seat face is circular and has a diameter of about 0.5 cm.--

--24. The vaporizer of claim 21 wherein said valve element has a valve face that is opposed to said valve seat.--

--25. The vaporizer of claim 24 wherein said valve face is planar.--

--26. The vaporizer of claim 19 wherein said valve seat has a seat face that is planar and opposed to said valve element and in which said second aperture is formed, said valve element has a valve face that is planar and opposed to said valve seat, and said seat face and valve face are parallel to each other.--

--27. A chemical vapor deposition system using a liquid reactant and a carrier gas,  
comprising:

a chemical vapor deposition chamber having a gas inlet port, and

a liquid reactant vaporizer having an outlet port connected to said chamber inlet port, said vaporizer comprising:

a valve body having a first aperture, a second aperture, and a third aperture;

a valve seat;

a gas inlet port for receiving said carrier gas, said gas inlet port connected to said first aperture through a first fluid channel;

a liquid inlet port for receiving the liquid reactant, said liquid inlet port connected to said second aperture through a second fluid channel;

a valve mechanism including a valve element disposed adjacent to said valve seat and forming a valve region, said valve seat being continuously adjustable by said valve mechanism over a continuous range of settings between and including a fully closed position and a fully open position so as to variably control the flow rate of the fluid; and

the outlet port connected to said third aperture through a third fluid channel,

the valve body defining a first volume in adjustable, fluid communication with a second volume through the valve seat wherein during normal operation the pressure in the first volume is different than the pressure in the second volume.--

--28. A method for vaporizing a liquid and mixing the vaporized liquid with a carrier gas, the method comprising:

a) providing a vaporizer having:

a valve body having a first aperture, a second aperture and a third aperture;

a valve seat through which fluid flows;